

Occupational Safety Precautions among Nurses at Four Hospitals, Nablus District, Palestine

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Abstract

Occupational hazards, exposure to blood and body fluids (BBF) accidents and safety precautions constitute an important public health issue. We assessed the prevalence and determinants of exposure to occupational hazards among nurses, and their knowledge of occupational safety precautions. In a cross-sectional study, we surveyed 332 nurses working in 4 hospitals, Nablus, West Bank, Palestine, by a questionnaire. Bivariate analysis tested the associations between ever exposure and the high likelihood of BBF exposure and the independent socio-demographic and occupational variables. Binary logistic regression analysis was used to assess the associations between the same two exposures and selected independent variables (those significant in the bivariate analysis). Prevalence of ever exposure to BBF was 51.7%, and was associated with working in private and charitable hospitals (OR 2.62, 2.68, respectively), having 4–6 family members (OR 0.52) and “nursing” being as one's top career choice at university (OR 0.48). The prevalence of high likelihood of BBF exposure was 62.2%, and was associated with working in charitable and private hospitals (OR 7.81, 2.43, respectively) and “nursing” being as one's top career choice (OR 0.57). Regarding knowledge, most respondents believed it is necessary to enact laws and regulations regarding occupational safety precautions, reported the use of sharps containers, immediate disinfection after an accident, reporting an accident, and using personal protective equipment. Nurses had adequate knowledge of the risks of their hospital work. Nevertheless, they exhibited high prevalence of exposure to BBF accidents. Future studies are needed to re-evaluate existing occupational safety guidelines in hospitals, establish monitoring and evaluation protocols for health care workers' adherence to the guidelines, and institute well-defined policies for reporting occupational injury incidents so these can be handled appropriately.

Keywords: Occupational safety; Occupational exposure; Nurses; Blood safety; Body fluids; Health knowledge, attitudes, practice; Palestine

Introduction

Occupational health is the “identification and control of risks arising from physical, chemical, and other workplace hazards in order to establish and maintain a safe and healthy working environment.”¹ The high occur-

rence and burden of occupational hazards in hospitals include sharps/needlestick injuries, contact with blood and body fluids (BBF), blood-borne infections, and accidents. Many sharp injuries occur in nurses and expose them to numerous infections. About 25% of health care workers (HCWs) are exposed to BBF. With a rate

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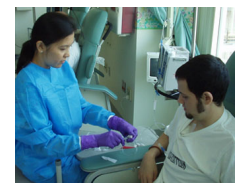


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of 50% of percutaneous injuries, nurses are the most vulnerable HCWs at high risk of exposure to occupational hazards.² The WHO emphasizes on primary prevention of workplace hazards, particularly because the highest incidence of nonfatal occupational injuries occurs in hospitals (7.5%), compared to the construction (6.2%) and manufacturing (5.6%) industries.³

Universal precautions (UP) aim to control the spread of hazards and infections, promote healthier work environments, and prevent/minimize the accidental transmission of blood-borne pathogens. Implementation of safety protocols in clinical practice requires HCWs' knowledge of such protocols and skills to implement them. In many instances, HCWs are familiar with the safety protocols or UP guidelines; however, HCWs frequently use the preventative measures and knowledge about needle stick injuries risks inappropriately.⁴ Knowledge of occupational hazards, safety precautions and compliance seem to be associated with demographic and occupational/health care facility variables, and hospital environment such as gender, age, work experience, type of the department, *etc.*

The current survey assessed the prevalence and determinants of two types of exposures to occupational hazards. We also assessed the knowledge of nurses working at four Nablus hospitals, West Bank, Pal-

estine, about occupational safety precautions in 2013.

Materials and Methods

Two governmental hospitals, a charitable hospital and a private hospital representing different types of hospitals in Nablus district, West Bank, Palestine, were studied. The study received ethical approval from the Ministry of Health and from the hospitals' directors. All nurses working at these hospitals were included (n=337) in this study. Data were collected using a validated questionnaire⁵ similar to questionnaires of safety knowledge, attitude and practices of HCWs used elsewhere.⁶ A pilot study was first undertaken. A total of 332 nurses (a response rate of 98.5%) completed the questionnaire. Experience of occupational exposure to injuries and knowledge of prescribed precautions were assessed. Nurses were also asked about whether they were ever exposed to accident(s) involving BBF, and if they perceived themselves to be at high risk of exposure to BBF (including future exposures).

Results

Respondents were predominantly female (73.1%); 60% were 20–30 years old, worked mainly at governmental hospitals (66.8%), and had diploma or BSc degree (65.9%, 33.5%, respectively). Almost 58.9% had ≤5 years of work experience as a nurse; most (85.5%) of them had worked for ≤5 years at hospital. Almost 52% reported ever exposure and 62% reported high risk of exposure to BBF. Around 87.6% found it necessary to generally enact laws and regulations regarding occupational safety precautions; 93.4% reported that the use of a sharps container is prescribed; 96.4% indicated that immediate disinfection after an accident is prescribed; 99.4% felt that

TAKE-HOME MESSAGE

- Occupational health hazards arise from physical, chemical, and other working environment.
- The higher perceived likelihood of BBF exposure in private hospitals compared to governmental hospitals might be due to less monitoring (*ie*, less checking) in private hospitals.
- Female nurses with large families might be predisposed to injury during work.

reporting an accident is prescribed; and 84.5% believed that using personal protective equipment is always prescribed.

Eighty-five percent of nurses had adequate knowledge of the prescribed occupational safety precautions, but despite the high knowledge and agreement with occupational safety precautions (ranging from 84.3% to 99.4%), many of the nurses (52%) had actually had BBF exposure (usually through needlestick injury or blood splashes) and were at high (62%) risk of being exposed to BBF. Table 1 shows the regression analysis of these two types of exposures to a BBF accident. After adjusting for socio-demographic and occupational factors, for ever exposure to BBF, those working in private and charitable hospitals were more than 2.5 times more likely to report ever exposure to BBF accidents (Table 1). Conversely, having 4–6 family members, and “nursing” being one's top career choice at university were both protective (OR 0.52, 0.48, respectively). Likewise, high likelihood of BBF exposure was positively associated with working in charitable and private hospitals (OR 7.81, 2.43, respectively), and negatively associated with “nursing” being one's top career choice (OR 0.57).

Discussion

The observed higher prevalence of ever exposure to BBFs in private hospitals compared to governmental hospitals could be attributed to better reporting in private hospitals among nurses when an incident happens. The higher perceived likelihood of BBF exposure in private hospitals compared to governmental hospitals might be due to less monitoring (*ie*, less checking) in private hospitals. Regarding the number of family members, to the best of our knowledge, no studies have investigated such an association with ever exposure to BBF. However, for female nurses with

Table 1: Regression analysis of two types of exposures to an accident involving blood and body fluids among nurses in Nablus hospitals, Palestine (n=331).

Variable*	Accident involving blood/ body fluids	
	Ever exposure OR (95% CI)	High risk of exposure OR (95% CI)
Age		
20–30	1	1
31–40	0.90 (0.48 to 1.71)	0.92 (0.52 to 1.64)
41–50	0.32 (0.05 to 2.23)	0.22 (0.02 to 2.18)
Hospital Type		
Government	1	1
Private	2.62 (1.33 to 5.14)	2.43 (1.26 to 4.70)
Charitable	2.68 (1.01 to 6.63)	7.81 (2.24 to 27.19)
Current living standard		
Good	1	–
Moderate	1.12 (0.62 to 2.00)	–
Bad	2.04 (0.82 to 5.08)	–
Nursing experience (yrs)		
≤5	1	1
6–10	0.82 (0.44 to 1.52)	0.94 (0.51 to 1.73)
>10	0.89 (0.34 to 2.30)	0.69 (0.27 to 1.80)
Family members (number)		
1–3	1	–
4–6	0.52 (0.28 to 0.99)	–
>6	0.76 (0.37 to 1.53)	–
Nursing as the top carrier choice?		
Yes	0.48 (0.29 to 0.80)	0.57 (0.35 to 0.94)
No	1	1

*Only variables significantly associated with the outcome in bivariate analysis were included in the binary logistic regression analysis.
OR: Odds ratio; 95% CI: 95% Confidence interval

large families, thinking about or being pre-occupied with the family issues during the absence of the nurse from home whilst being at work, might predispose nurses to accidental injury during work. Our finding that choosing nursing as one's top career choice was protective for exposure to occupational hazards, suggested better commitment on the part of such nurses to their job, hence better awareness of the surrounding occupational hazards.

Given our findings, we recommend enhancement of the level of knowledge among nurses and encouraging compliance with occupational safety precautions. Future studies are needed to re-evaluate the existing occupational safety guidelines in the hospitals and health care centers, establish monitoring and evaluation protocols to ensure adherence to the guidelines by the HCWs and institute well-defined policy for reporting incidents of occupational injuries so they can be handled appropriately.

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Conflicts of Interest: None declared.

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